

# cmgh

CELLULAR AND  
MOLECULAR  
GASTROENTEROLOGY  
AND HEPATOLOGY

VOLUME 2 • NUMBER 1

WWW.CMGHJOURNAL.ORG

JANUARY 2016

## Contents

### COMMENTARIES

- 1 **Looking Back; Looking Forward!**  
*J. R. Turner*

- 2 **Taiwan: A CMGH Champion!**

### EDITORIALS

- 3 **Moving Beyond the Mouse: Key New Insight Into Human Colonic Dendritic Cells**

*T. L. Denning*

See article, Bernardo D et al, on page 22

- 5 **Macrophages: The Missing Link in Diabetic Gastroparesis?**

*S. Srinivasan*

See article, Cipriani G et al, on page 40

- 7 **Brush Border Destruction by Enterohemorrhagic *Escherichia coli* (EHEC): New Insights From Organoid Culture**

*M. J. Tyska*

See article, In J et al, on page 48

- 9 **Glial Orchestrated Neurodegeneration: An Important Crossroad for Neural Stem Cell Therapy to the Intestine**

*T. C. Savidge*

See articles, Brown IAM et al, on page 77, and Rollo BN et al, on page 92

### REVIEW

- 11 **New and Unexpected Biological Functions for the Src-Homology 2 Domain-Containing Phosphatase SHP-2 in the Gastrointestinal Tract**

*G. Coulombe and N. Rivard*

*SHP-2 is a tyrosine phosphatase widely expressed and involved in multiple cell signaling processes. Accumulating evidence now is emerging whereby dysfunction in this protein tyrosine phosphatase also represents a key factor in the pathogenesis of gastrointestinal diseases, in particular in chronic inflammation and cancer.*

## ORIGINAL RESEARCH

- 22 Chemokine (C-C Motif) Receptor 2 Mediates Dendritic Cell Recruitment to the Human Colon but Is Not Responsible for Differences Observed in Dendritic Cell Subsets, Phenotype, and Function Between the Proximal and Distal Colon**  
*D. Bernardo, L. Durant, E. R. Mann, E. Bassity, E. Montalvillo, R. Man, R. Vora, D. Reddi, F. Bayiroglu, L. Fernández-Salazar, N. R. English, S. T. C. Peake, J. Landy, G. H. Lee, G. Malietzis, Y. H. Siaw, A. U. Murugananthan, P. Hendy, E. Sánchez-Recio, R. K. S. Phillips, J. A. Garrote, P. Scott, J. Parkhill, M. Paulsen, A. L. Hart, H. O. Al-Hassi, E. Arranz, A. W. Walker, S. R. Carding, and S. C. Knight*  
*Intestinal dendritic cells (DC) maintain a balance between tolerance of nutrients/commensals and immunity against pathogens. Here, we report lower numbers of CD103<sup>+</sup>SIRPα<sup>+</sup> DC, with a more mature phenotype and higher immune activity, in the proximal than in the distal healthy human colon.*  
[See editorial, Denning TL, on page 3](#)
- 40 Diabetic Csf1<sup>op/op</sup> Mice Lacking Macrophages Are Protected Against the Development of Delayed Gastric Emptying**  
*G. Cipriani, S. J. Gibbons, P.-J. Verhulst, K. M. Choi, S. T. Eisenman, S. S. Hein, T. Ordog, D. R. Linden, J. H. Szurszewski, and G. Farrugia*  
*Diabetic Csf1<sup>op/op</sup> mice do not develop delayed gastric emptying but wild-type Csf1<sup>+/+</sup> mice do. This result reinforces the concept that macrophages are necessary for the development of delayed gastric emptying.*  
[See editorial, Srinivasan S, on page 5](#)
- 48 Enterohemorrhagic Escherichia coli Reduces Mucus and Intermicrovillar Bridges in Human Stem Cell-Derived Colonoids**  
*J. In, J. Foulke-Abel, N. C. Zachos, A.-M. Hansen, J. B. Kaper, H. D. Bernstein, M. Halushka, S. Blutt, M. K. Estes, M. Donowitz, and O. Kovbasnjuk*  
*Using a novel human colonoid monolayer model, the earliest targets of enterohemorrhagic Escherichia coli infection by the serine protease EspP have been identified. Mucin-2 and protocadherin-24 are targeted sequentially, leading to bacterial attachment to the epithelium and microvillar effacement.*  
[See editorial, Tyska MJ, on page 7](#)
- 63 Reduction of p53 by Knockdown of the UGT1 Locus in Colon Epithelial Cells Causes an Increase in Tumorigenesis**  
*M. Liu, S. Chen, M.-F. Yueh, G. Wang, H. Hao, and R. H. Tukey*  
*UGT1A expression is required to maintain and sustain p53 activation in stress-induced colon epithelial cells, and it has a significant impact on p53-mediated apoptosis and tumor suppression.*
- 77 Enteric Glia Mediate Neuron Death in Colitis Through Purinergic Pathways That Require Connexin-43 and Nitric Oxide**  
*I. A. M. Brown, J. L. McClain, R. E. Watson, B. A. Patel, and B. D. Gulbransen*  
*Death of enteric neurons contributes to motility dysfunction in gastrointestinal disorders. Our work provides the first evidence of glial activation as a driver of enteric neurodegeneration.*  
[See editorial, Savidge TC, on page 9. See related article, Rollo BN et al, on page 92](#)
- 92 Enteric Neural Cells From Hirschsprung Disease Patients Form Ganglia in Autologous Aneuronal Colon**  
*B. N. Rollo, D. Zhang, L. A. Stamp, T. R. Menheniott, L. Stathopoulos, M. Denham, M. Dottori, S. K. King, J. M. Hutson, and D. F. Newgreen*  
*We show that enteric neural cells isolated from Hirschsprung disease patients can colonize aneuronal colon tissue to generate neurons and glia. Our findings establish the therapeutic potential of using patient's own neural cells to form an enteric nervous system in autologous tissue.*  
[See editorial, Savidge TC, on page 9. See related article, Brown IAM, on page 77](#)